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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,451	12/28/2001	Chad A. Mirkin	01-661-A	9317

20306 7590 03/26/2004

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EXAMINER	
STRZELECKA, TERESA E	

ART UNIT	PAPER NUMBER
1637	

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/034,451	MIRKIN ET AL.	
	Examiner	Art Unit	
	Teresa E Strzelecka	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-19,32-34 and 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-19,32-34 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/14/03 and 7/8/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to an amendment filed December 15, 2003. Claims 1-35 were previously pending. Applicants cancelled claims 1, 2, 20-31 and 35, added new claim 36 and amended claims 5-8, 10-19 and 32. Claims 3-19, 32-34 and 36 are pending and will be examined.

2. Applicants' claim amendments overcame the following: objection to claims 11-19; rejection of claims 32-34 under 35 U.S.C. 112, second paragraph. The other rejections presented in the previous office action are maintained for reasons given in the "Response to Arguments" section.

Information Disclosure Statement

3. The information disclosure statements (IDS) submitted on May 14, 2003 (8th supplemental IDS) was filed after the mailing date of the restriction/election requirement on January 8, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. Reference No. 6 was considered, but was not initialed, since it is a duplicate of a previously considered reference.

4. The information disclosure statements (IDS) submitted on July, 2003 (9th supplemental IDS) was filed after the mailing date of the first office action on July 17, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

5. The drawings were received on December 15, 2003. These drawings are accepted. The objections to drawings 4-6 from the previous office action are withdrawn.

Specification

6. Applicants' amendments to specification overcame the objection from the previous office action.

Response to Arguments

7. Applicant's arguments filed December 15, 2003 have been fully considered but they are not persuasive.

A) Regarding the rejection of claims 3-5, 7 and 10-16 under 35 U.S.C. 102(e) over Abbot et al., Applicants argue that Abbott et al. do not teach non-alloying gold shell metal coating, whereas Applicants' core/shell nanoparticles retain the physical and/or optical properties of the core with no observed physical or optical competing effects from the gold shell.

As stated in the specification (page 4, lines 32, 33 and page 5, lines 1-8): "In yet another aspect the present invention provides a method for preparation of non-alloying gold core/shell nanoparticles and product produced therefrom. The method of the invention comprises providing an inner nanoparticle core, treating the core simultaneously with a solution comprising a gold salt and a solution comprising a reducing agent, and isolating the core/shell nanoparticles. The method provides for the first time a non-alloying gold shell surrounding a nanoparticle core. These non-alloying gold core/shell nanoparticles exhibit suprising superior spectroscopic properties not found in conventional gold core/shell nanoparticles and can be functionalized with molecules such as nucleic acids and receptors, to produce nanoparticle conjugates that can be used for targeting and detecting target analytes such as nucleic acids, antigens, proteins, carbohydrates and other substances."

Abbott et al. teach making the core-shell nanoparticles by providing a particulate substrate and electrolessly plating gold onto the particles. The process involves using easily reducible gold salt, such as $Na_3Au(SO_3)_2$ and a reducing agent (col. 37, lines 6-38). Therefore, core-shell particles of Abbott et al. are produced in the way described by Applicants, therefore they are expected to

possess the same properties as Applicants' core-shell particles, such as the shell being non-alloying. Further, Applicants do not claim specific physical or optical properties of the nanoparticles.

The rejection is maintained.

B) Regarding the rejection of claims 8, 9 and 32-34 under 35 U.S.C. 102(e) over Abbot et al. and Mirkin et al., Applicants argue that since Abbott et al. do not teach all of the limitations of claim 3, the combination of the references is improper. The arguments regarding Abbott et al. were addressed above.

The rejections are maintained.

8. This office action is made non-final because of new grounds for rejection (double patenting).

Priority

9. Claims 6-9, 17-19 and 32-34 do not have the benefit of the filing date of the priority application, 60/293,861, because the following features of the core/shell nanoparticles were not disclosed in the priority application: cores of FePt or FeAu, metal oxide cores, magnetic cores, densities of oligonucleotides on the surface of nanoparticles and hybridization using nanoparticles in the presence of a magnetic field. Therefor a priority date for claims 6-9, 17-19 and 32-34 is the filing date of the instant application, 12/28/2001.

Claim Interpretation

10. Applicants did not define the term "nanoparticle", therefore this term is interpreted as a particle of any size.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 3-5, 7, 10 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Abbott et al. (U. S. Patent No. 6,277,489 B1; cited in the IDS and in the previous office action).

Regarding claim 3, 5, 7 and 36, Abbott et al. teach a multilayered material comprising a particulate substrate (= core), a metal film layered onto the substrate (= shell) and a recognition moiety attached to the metal layer (col. 4, lines 22-35). The particulate substrate can be any material, such as metal oxide, for example Fe_2O_3, NiO (col. 10, lines 34-36). The particulate substrate may be any metal, selected according to desired properties, for example, being magnetic (col. 9, lines 55-67; col. 10, lines 1-6, 33-67; col. 11, lines 1-4). The particles can be of any size (col. 9, lines 63-65).

The particulate substrate is coated with a metal layer (= shell), such as gold, silver, platinum, palladium, nickel and copper, with gold being particularly preferred (col. 9, lines 3-13; col. 11, lines 34-55). An organic layer is attached to the metal layer and provides a link to the recognition moiety.

Regarding claim 4, Abbott et al. teach recognition moieties including biomolecules, such as nucleic acids (col. 12, lines 9-25; col. 16, lines 38-54; col. 19, lines 56-59).

Regarding claim 10, Abbott et al. teach at least one layer of the metal coating (col. 11, lines 44-46).

Note regarding rejection of claim 36: this is a product-by-process claim, and it is not clear how the method of making a product of claim 36 makes the final product, i.e., a core-shell nanoparticle with oligonucleotide bound to it, different from the product of Abbott et al. (see MPEP 2113).

MPEP 2113 Product-by-Process Claims

PRODUCT-BY-PROCESS CLAIMS ARE NOT LIMITED TO THE MANIPULATIONS OF THE RECITED STEPS, ONLY THE STRUCTURE IMPLIED BY THE STEPS.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott as applied to claims 3 and 7 above, and further in view of Mirkin et al. (U.S. Patent No. 6,361,944 B1; cited in the IDS and in the previous office action).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e).

This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

A) Claim 8 is drawn to nanoparticle core being magnetic, and claim 9 is drawn to the nanoparticle core comprising Fe_3O_4 or CO_3O_4.

B) The teachings of Abbott et al. are presented above. Abbott et al. do not teach nanoparticle core being magnetic, but they do teach that the metal cores may be selected for their magnetic properties.

C) Mirkin et al. teach nanoparticle-oligonucleotide conjugates used in nucleic acid detection methods (col. 2, lines 6-17). Mirkin et al. teach nanoparticles being magnetic (col. 16, lines 29-32), and Fe_3O_4 core nanoparticles with a silica shell, which can be conjugated to oligonucleotides (col. 33, lines 19-27).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have used magnetic-core of Mirkin et al. in the nanoparticles of Abbott et al. The

motivation to do so would have been that oligonucleotides attached to magnetic particles could be removed from solution by application of a magnetic field, allowing easy separation of hybridization products from solution.

15. Claims 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott et al. (U. S. Patent No. 6,277,489 B1; cited in the IDS and in the previous office action) and Mirkin et al. (U.S. Patent No. 6,506,564).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

A) Regarding claim 11, Abbott et al. teach a method for making core/shell nanoparticle oligonucleotide conjugates comprising

(a) providing inner metal-containing nanoparticle cores (Abbott et al. teach providing metal-containing nanoparticle cores (col. 37, lines 5-11; col. 38, lines 16-20; col. 10, lines 33-67; col. 11, lines 1-4).);

(b) treating the inner metal-containing nanoparticle cores simultaneouslv with a solution comprising a gold salt and a solution comprising a reducing agent under conditions that produce a non-alloying gold shell surrounding the nanoparticle cores (Abbott et al. teach treating the core particles with a solution containing a gold salt, such as such as $Na_3Au(SO_3)_2$ and a reducing agent (col. 37, lines 6-38).);

(c) isolating the core/shell nanoparticles (Abbott et al. do not specifically teach isolating the core/shell nanoparticles, but since they teach subsequent steps of modifying the particles, it is inherent to the method that they would have to be isolated.);

(d) contacting the oligonucleotides with the isolated core/shell nanoparticles in a first aqueous solution for a period of time sufficient to allow some of the oligonucleotides to bind to the nanoparticles (Abbott et al. teach attachment of a reactive moiety and recognition moiety to the particles (col. 38, lines 22-32; col. 21, lines 32-47). One of the contemplated recognition moieties is nucleic acid (col. 19, lines 57; col. 22, lines 66, 67; col. 23, lines 1-5).).

Regarding claim 12, Abbott et al. teach oligonucleotides having reactive groups which can bind to nanoparticle (col. 22, lines 66, 67; col. 23, lines 1-5).

B) Abbott et al. do not teach addition of salt to the oligonucleotide-nanoparticle solution, or oligonucleotide densities of at least 10 picomoles/cm^2, or least 15 picomoles/cm^2, or from about 15 picomoles/cm^2 to about 40 picomoles/cm^2.

C) Regarding claim 11, Mirkin et al. teach attachment of oligonucleotides to surfaces of gold nanoparticles by the process comprising:

(d) contacting the oligonucleotides with the isolated core/shell nanoparticles in a first aqueous solution for a period of time sufficient to allow some of the oligonucleotides to bind to the nanoparticles (Mirkin et al. teach contacting oligonucleotides with nanoparticles in water (= first aqueous solution) to allow some of the oligonucleotides to bind to the nonoparticles (col. 48, lines 24-34.)).

(e) adding at least one salt to the aqueous solution to create a second aqueous solution (Mirkin et al. teach adding at least one salt to the aqueous solution to create a second aqueous solution (col. 48, lines 35, 36).); and

(f) contacting the oligonucleotides and nanoparticles in the second aqueous solution for an additional period of time to enable additional oligonucleotides to bind to the nanoparticles (Mirkin et al. teach contacting the oligonucleotides and nanoparticles in the second solution for an additional period of time to allow additional oligonucleotides to bind to the nanoparticles (col. 48, lines 63-67).).

Regarding claim 12, Mirkin et al. teach oligonucleotides comprising functional groups which can bind to nanoparticles (col. 48, lines 15-24).

Regarding claim 13, Mirkin et al. teach addition of salt to water in a single batch (col. 48, line 42).

Regarding claim 14, Mirkin et al. teach addition of salt to water gradually over time (col. 48, lines 43-46).

Regarding claims 15 and 16, Mirkin et al. teach salts selected from the group consisting of sodium chloride, magnesium chloride, potassium chloride, ammonium chloride, sodium acetate, ammonium acetate or a combination of two or more of these salts in phosphate buffer (col. 48, lines 36-40).

Regarding claim 17, Mirkin et al. teach oligonucleotide surface density of at least 10 picomoles/cm^2 (col. 49, line 24).

Regarding claim 18, Mirkin et al. teach oligonucleotide surface density of at least 15 picomoles/cm^2 (col. 49, lines 26, 27).

Regarding claim 19, Mirkin et al. teach oligonucleotide surface density of at least 15 picomoles/cm^2 to no greater than about 35-40 picomoles/cm^2 (col. 49, lines 26-32).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to have used the salt addition method of Mirkin et al. in the production of nanoparticle-oligonucleotide conjugates of Abbott et al. The motivation to do so, provided by Mirkin et al., would have been that conjugates produced by addition of salt solutions ("aging step") were more stable than those produced without the aging step and the process resulted in increased oligonucleotide density (col. 49, lines 8-39). Further, as stated by Mirkin et al., "Aside from their stability, the nanoparticle-oligonucleotide conjugates made by this method exhibit other remarkable properties. See, e.g., Examples 5, 7, and 19 of the present application. In particular, due to the high surface density of the conjugates, they will assemble into large aggregates in the presence of a target nucleic acid or oligonucleotide. The temperature over which the aggregates form and dissociate has unexpectedly been found to be quite narrow, and this unique feature has important practical consequences. In particular, it increases the selectivity and sensitivity of the methods of detection of the present invention. A single base mismatch and as little as 20 femtomoles of target can be detected using the conjugates. Although these features were originally discovered in assays performed in solution, the advantages of the use of these conjugates have been found to extend to assays performed on substrates, including those in which only a single type of conjugate is used."

16. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abbott et al. (U. S. Patent No. 6,277,489 B1; cited in the IDS and in the previous office action) and Mirkin et al. ((U.S. Patent No. 6,361,944 B1; cited in the IDS and in the previous office action).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Regarding claim 32, Abbott et al. teach a multilayered material comprising a particulate substrate (= core), a metal film layered onto the substrate (= shell) and a recognition moiety attached to the metal layer (col. 4, lines 22-35). The particulate substrate can be any material, such as metal oxide, for example Fe_2O_3, NiO. The particulate substrate may be any metal, selected according to desired properties, for example, being magnetic (col. 9, lines 55-67; col. 10, lines 1-6, 33-67; col. 11, lines 1-4). The particles can be of any size (col. 9, lines 63-65).

The particulate substrate is coated with a metal layer, such as gold, silver, platinum, palladium, nickel and copper, with gold being particularly preferred (col. 9, lines 3-13; col. 11, lines 34-55). An organic layer is attached to the metal layer and provides a link to the recognition moiety. Recognition moieties include biomolecules, such as nucleic acids (col. 12, lines 9-25; col. 16, lines 38-54; col. 19, lines 56-59).

The multilayered material may be used to capture a molecule in a purification process or an assay, and the captured molecule may be a nucleic acid (col. 24, lines 13-62). The multilayered material may be used to determine the presence or quantity of an analyte in a sample by contacting the sample with a multilayered material, forming a complex between a recognition moiety and an analyte and detecting the analyte (col. 31, lines 44-63).

B) Abbott et al. do not teach nucleic acids bound to a surface or hybridization conducted in the presence of magnetic field using magnetic (Fe_3O_4) core/shell nanoparticles.

C) Regarding claims 32-34, Mirkin et al. teach nanoparticle-oligonucleotide conjugates used in nucleic acid hybridization methods, where the nucleic acid is contacted with nanoparticle-oligonucleotide conjugates under conditions which allow hybridization of the oligonucleotides on nanoparticles with nucleic acids, which results in a detectable change (col. 2, lines 6-17). Mirkin et al. teach analyte nucleic acid bound to a surface (Fig. 13A).

Mirkin et al. teach nanoparticles being magnetic (col. 16, lines 29-32), and Fe_3O_4 core nanoparticles with a silica shell, which can be conjugated to oligonucleotides (col. 33, lines 19-27). The magnetic nanoparticles can be attached to a satellite probe, which may be labeled with a reporter molecule. The satellite probe is brought in contact with a target, and detection is accomplished by applying a magnetic field, removing particles from solution and measuring the

fluorescence of probe oligonucleotides hybridized to the target (col. 32, lines 44-67; col. 33, lines 1-48; Fig. 24).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to have combined magnetic-core particle hybridization of Mirkin et al. with analyte detection assays of Abbott et al. The motivation to do so would have been that oligonucleotides attached to magnetic particles could be removed from solution by application of a magnetic field, allowing easy separation of hybridization products from solution.

Double Patenting

17. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

18. Claims 3-10 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 2-8 of copending Application No. 10/153,483. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

19. Claims 3-10 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 3-10 of copending Application No. 10/397,579. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

20. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

21. Claims 32-34 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 35-37 of copending Application No. 10/153,483. Although the conflicting claims are not identical, they are not patentably distinct from each other because the only difference between claims 32-34 of the instant application and claims 35-37 of the 10/153,483 application is the limitation of the core of the nanoparticle being magnetic. As the nanoparticles are being used in the magnetic field, this is an obvious limitation.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

22. Claims 32-34 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 32-34 of copending Application No. 10/397,579. Although the conflicting claims are not identical, they are not patentably distinct from each other because the only difference between claims 32-34 of the instant application and claims 32-34 of the 10/397,579 application is the limitation of the core of the nanoparticle being magnetic. As the nanoparticles are being used in the magnetic field, this is an obvious limitation.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

23. No references were found teaching or suggesting claim 6, but it is rejected for other reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa E Strzelecka whose telephone number is (571) 272-0789. The examiner can normally be reached on M-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on (571) 272-0782. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TS
March 15, 2004

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